INDEX

PAGE NO.

1. TITLE OF THESIS **ROLE AND IMPORTANCE OF SECL IN SOCIOECONOMIC DEVELOPMENT OF CHATTISGARH** (IN SPECIAL REFERENCE TO KORBA DISTRICT) 1

2. INTRODUCTION 2-6

3. STATEMENT OF PROBLEM 6

4. REVIEW OF LITERATURE 6-7

5. OBJECTIVE OF STUDY 7

6. HYPOTHESIS 7

7. SCOPE OF STUDY 8

8. NEED OF STUDY 8

9. PLAN OF WORK AND PROPOSED METHODOLOGY 9

10. WORTHY CONTRIBUTION IN THE FIELD OF PROPOSED METHODOLOGY 10

11. TENTATIVE SCHEME OF CHAPTERS 11-15

12. BIBLIOGRAPHY & REFERENCES 16-17

SIGNATURE OF THE SUPERVISOR **SIGNATURE OF THE CANDIDATE**

FORWORDED TO: **CHAIRMAN, RDC**

1. TITLE OF THESIS

"ROLE AND IMPORTANCE OF SECL IN ECONOMIC DEVELOPMENT OF CHATTISGARH"

2. INTRODUCTION

India is currently among the top three fastest growing economy of the world. The **Mining industry in India** is a major economic activity which contributes significantly to the economy of India. The GDP contribution of the mining industry varies from 2.2% to 2.5% only but going by the GDP of the total industrial sector it contributes around 10% to 11%. This study is concerned with the coal deposits and coal fields companies which are engaged in production of coal in Chhattisgarh state and contributing to the economy of Chhattisgarh as well as to the economy of India.

Chhattisgarh is a state in Central India. It is the 10th largest state in India, with an area of 135,190 km^2 (52,200 sq mi), with a population of 25.5 million. Chhattisgarh is the 16th most-populated state of the nation. Chhattisgarh is the richest State in terms of mineral wealth, with 28 varieties of major minerals, including diamonds.

The state has 16% of the total coal deposits of India.

SECL (South Eastern Coalfields Limited) headquartered in Bilaspur,(CG) is the largest coal producing company in the country. It is one of the eight subsidiaries of Coal India Limited (A Govt. of India Undertaking) under the Ministry of Coal.

SECL is wholly engaged in coal production in Chhattisgarh as the coal deposits of SECL occur in five districts i.e. Bilaspur, Korba, Raigarh, Surguja & Korea in Chhattisgarh and three districts Shahdol, Umaria, Anuppur district in Madhya Pradesh. Therefore this study also concerns with SECL.

COMPANY PROFILE:

As per the globally estimated coal reserve deposit (as on 31sts March 2011), India has the 5^{th} largest coal resource in the world. India accounts for 286 B.T. estimated coal reserve deposit over 861 B.T.

The demand for coal is improving in India with the development of thermal power plants at a very fast pace as compared to what it was a decade ago. The list of top companies in the coal mining industry in India is given below, here it should be noted that there are not many major private coal company as in the early 1970s since almost all privately owned coal companies were nationalized under the Coal Mines Act in India:

- Coal India Limited
- Neyveli Lignite Corporation
- Singareni Collieries Company

Coal india is the largest company in the coal mining industry. It is a **Maharatna Company.** Coal india deals with various coal based products; The list of products dealt by this company is given below:

- Coking Coal
- Semi Coking Coal
- NLW Coking Coal

- Non-Coking Coal
- Washed and beneficiated coal
- Middlings
- Rejects
- CIL/LTC Coal
- Coal Fines/Coke Fines
- Soft pitch/light oil/heavy oil/tar

SECL (South Eastern Coalfields Limited) is the largest coal producing company in the country.

Its mines spread over Chhattisgarh and Madhya Pradesh. It has total 92 mines, 70 underground, 21 opencast and there is mixed mine. It is a **schedule 'B' Mini Ratna CPSE** in coal and lignite under the administrative control of ministry of coal.

In year 2011-12, total coal production by SECL from open cast and underground mines was 113.84 M.T. out of total coal production of 435.84M.t produced by Coal India Ltd which is highest among all subsidiaries of Coal India Ltd.

PRODUCT OF THE COMPANY

South Eastern Coal field Limited is the largest coal producing company in India. Coal is the main source of revenue of this company. Coal is composed primarily of carbon along with variable quantities of others materials i.e. Hydrogen, sulfur, oxygen and nitrogen.

Coal is the largest source of energy generation worldwide. Coal is found in verity of grades which depends upon the composition of carbon and others substances. Uses of coal depend upon its Combustion efficiency and combustion efficiency depends upon quantity of carbon content in it. It is a rough indicator that as how old the coal deposits, it contains as higher carbon content.

The ranks and types of coal are:-

- Anthracite
- Bituminous
- Sub-bituminous
- Lignite

In SECL non-coking coal is found which fall in the category of Sub-bituminous, which is mainly used in following sectors.

- Power generation.
- Steel Industry.
- Cement Industry.
- Fertilizer manufacturing units.
- Bricks manufacturing.
- Oil and Pharmaceutical Industry.

MINING TECHNOLOGY AND KNOWHOW:

Mining is the process of removing coal from the ground.
There are two types of mining: (a) underground mining and (b) surface mining.

When the coal seam is fewer than 125 feet under the surface, it is mined by surface mining. If Coal seam is deeper than 125 feet is removed from the ground by underground mining.

It uses various mining technologies in various types of mines as:

- **Surface mining** – Surface mining is used when coal seam is located near to surface. It is also known as open-pit mining, open-cut mining or strip mining. Heavy equipment is used to clear the land of trees, shrubs and topsoil.

  The earth above the coal is known as overburden (OB) and coal seam is coal block. Bulldozers and Shovels scoop the coal and load into large truck to dispatch. A strip of overburden is drilled, the drilled holes are filled with explosive and blasted. Then OB material is removed using large earthmoving equipments such as; Draglines, Shovels, Excavator, bucket wheel and conveyors and Dumpers.

- **Underground Mining** - Underground Mining is used when coal seam lies deep in the earth. In underground mines, only some of the coal is removed from underground mines, and rest coal remains to support mine roof.

  There are three type of mines found 1) slop 2) Drift 3) shaft.

  The most common type of underground mine is shaft mine.
  There are two mining methods which are used for coal extraction

  1) Room and Pillar Mining

  2) Long wall Mining

  New Technology and know-how in SECL

- For underground mines SECL has introduced thick seam extraction with Cable bolting, depillaring of contiguous seams with floor pinning and Powered Support Long wall Technology at Ballarpur and Rajendra under Ground Mines.

- Mass production technology, Hydro-fracturing and long hole blasting at goaf from underground for hard roof management at Churcha West Mines etc.

- Central stores equipped with on-line management system.
- E-tendering system.etc

  High capacity of machinery are being used on open cast mines and also planned to expand the capacity of machinery from lower denomination to higher denomination in fourth coming years.

  SECL continuously up-grades its technology of mining to meet the higher market demand and better utilization of available recourses.

PLANT AND MACHINERY

At coal deposit site to extract the coal and to process it dispatch site, large number of machineries and equipments are required. The Selection criteria of mines, for equipments selection depends on various parameters. Some of those parameters are.

- Coal reserves and OB volumes and annual production capacity required.

- Geological disturbances.
- Inter seam partings.
- Gradient of deposits
- Number and thickness of the seams.
- Hardness of the coal and overburden strata.
- Location of deposit with respective surface structure, forest land etc.
- Extent of deposit.

The main Plants, equipments and machinery required for coal extraction and processing for final production comprises the following:-

- Rock Excavation Machine
- Hydraulic / Electric shovel.
- Drills
- Draglines.
- Dozer and Bulldozer.
- Dumper and Trucks.
- Pump and drainage.
- Fully equipped workshop.etc

MODE OF TRASPORTATION FOR COAL DISPATCH

Coal dispatch is one of the important activities of coal production. A fast coal dispatch is needed for a fast production of coal and also for maximum business.

Coal is dispatched by Various Modes of Transportation. These transportation mediums include Rail, Road, Conveyor Belt, MGR etc.

The dispatches of coal in SECL by various modes of transport during the year 2011-12 were 115.13. The mode-wise dispatches are shown in the following table:

(Figures in MT)

Mode of Transport	2011-12
Rail	44.36
Road	44.01
Belt	5.02
MGR	18.97
Consumers' own Wagons	2.77
	Total 115.13

LAND AND BUILDING

Mining is large scale production activity hence it requires large extent of land for the purpose of mining. Govt. provides land on lease for mining, to the concerned industries and holds on royalty on coal production.

As on 31/03/2007 SECL has mining right of over 956.41 sq.km and out of which 259.85 sq.km has 4 major coalfields.

Coal Mining is large scale production activity and required thousand of corers investment in fixed assets and Current assets for smooth functioning.

INFRASTRUCTURE AND FACILITIES

SECL provides various facilities to its employees; Its surrounding areas are equipped with basic infrastructural facility like: Rail, Road, Bank, Post-office, Housing, communication, play ground, health and Education. Apart from this some other Infrastructural and work place facilities which are provided by SECL to its employees are mentioned below:-

- Free Accommodation facility
- Free Electricity facility
- Free CUG SIM card with BSNL connection.
- Broad band VPN connectivity of 512 kbps bandwidth has been provided.
- Shopping market, vegetables market and recreation club.

3. STATEMENT OF PROBLEM:

"**A study of Role and Importance of SECL in Economic Development of Chhattisgarh**"

The research will cover coalfields located in Korba district. It will consider contribution of SECL in various aspects for growth of Chhattisgarh state.

It will also consider different industrial sectors for their contribution towards growth and development of Chhattisgarh state.

4. REVIEW OF LITERATURE

A review of the literature is an essential part of any research project. The review is a careful examination of a body of literature pointing towards the answer to our research questions which are carried out earlier by some research scholars.

For purpose of this research project; following research literatures and journals are studied carefully.

PTO

1. नवगठित छत्तीसगढ़ राज्य के आर्थिक विकास में सिमेंट उद्योग का योगदान; रायपुर संभाग के विशेष संदर्भ में,

2. भारत की आर्थिक उदारीकरण, उपलब्धियाँ एवं चुनौतियां,

3. छत्तीसगढ़ के आर्थिक विकास में खनिज संसाधन एवं उस पर आधारित उद्योगों का योगदान एक संश्लेषणात्मक विश्लेषण

4. भिलाई इस्पात संयंत्र के क्षेत्रान्तर्गत स्थित दल्ली राजहरा नंदनी तथा हिर्री खदानों के श्रमिकों का आर्थिक एवं सामाजिक विश्लेषण

5. OBJECTIVE OF THE STUDY:

The objectives of this study include following:-

Primary objectives

- To study the contribution of SECL in social and economic development of Chhattisgarh state.
- To study growth and prospect of SECL in Chhattisgarh state.
- To study the living standards of stakeholders of SECL.
- To study how SECL serves and fulfils its social responsibility towards nearby areas.
- To study how and how much extend it generates; Indirect Employment in its surrounding areas.
- To study the financial condition of SECL.
- To study the Manpower Analysis in the context of Chhattisgarh.

Secondary objective

- To study the problems related to land acquisition for extension of projects and establishment of new projects.
- To study problems and conflicts between various stakeholder of SECL.
- To suggest how to improve public relation and to overcome from problems and conflicts.

6. HYPOTHESIS:

Proposed hypothesis of topic:-

- Due to intensives given by state govt. for industrialization there is a huge scope of expansion of coal production and others subsidiaries Industries would be benefited: e.g. Steel and iron, Cement, Tar coal, Fertilizer, Bricks industries etc.
- For extraction and processing of coal, skilled, semi skilled and un-skilled work forces are needed which are easily available in Chhattisgarh.
- Chhattisgarh has very large reserves of good quality of Bituminous coal hence there is a huge scope of coal production in coming decades.
- SECL plays a vital role in preventing of migration of labors to others state. for expansion of production.

- SECL contributes in social, economic, educational and Infrastructural development of Chhattisgarh.

- SECL contributes in protection and enrichment of surrounding environment.

7. SCOPE OF THE STUDY:

Periodic scope of this research is last two decades and for Korba district level it is for last 5 years.

The Geographical scope of the study is Chhattisgarh state in general and Korba district in particular.

New industrial policy 1991 and economic reforms encourages economic activity and raise in production and employment, it accelerated the growth of foreign trade and opening of foreign direct investment in India. Impact of new industrial licensing policy increases the competition level in market. The changing scenario of industrial sectors will be part of this study.

The coal deposits of SECL occur in five districts in Chhattisgarh

1. Bilaspur 2. Korba 3. Raigarh 4. Surguja 5. Korea

And three districts in Madhya Pradesh.
SECL has 92 mines in which 42 comes under Chhattisgarh state.

SECL has 4 major coalfields i.e. Korba coalfields, Central coalfields, Mand-Raigarh coalfields and Ramkola-Tatapani coalfields but special preference is given to Korba coalfields.

Korba coalfield is located in Korba District and covers an area of about 530 sq.km where 10115.21Mt. Coal reserve is available. Thick seam of grade E,F & G having reserve of approx 9068Mt. for open cast mining and thin seam of superior grade B and D having reserves of approx 1007 Mt.

Operational scope of study limited to Korba coalfields in Korba district. The tools for study will annual financial report, census report and others reports prepared by different department of govt. for close monitoring and observation.

8. NEED OF THE STUDY:

- Mineral reserves are the big strength of Chhattisgarh state. It has big deposits of Coal, Lime stones, Iron ore, Copper, Rock phosphate, Manganese, Bauxite, Asbestos and Mica. Chhattisgarh accounts for 16% of nation's coal reserves.

- Chhattisgarh has total 4882.4 MW (as per 2011) installed capacity of power generation. In which 93% state owned and 87% private owned are coal based thermal power generation units.

- Korba in Chhattisgarh is termed as the "power capital" of India. The state has huge coal reserves therefore it has a large opportunity of electricity generation.

- The state has two important industrial area

  Bhilai- which is home of iron and steel ancillary units.

  Korba- is homes of coal, power and aluminum producing units.

- SECL registered as public limited company with the status of " Mini Ratna Company" which required huge amount of fixed and working capital and large number of human resource.

- Coal industry generates employment to large extent through direct and indirect way.

- Coal is the life blood of Industrialization and main source of energy of many industries like cement, steel, aluminum and fertilizer industry.

- SECL contribute in development of nearby society by its Corporate social Responsibility program and protect environment by its environment protection program.

9. PLAN OF WORK AND PROPOSED METHODOLOGY:

The research is a systematic method of enunciating the problem formulation, collection of data, analyzing the facts and reaching ultimate conclusion either in the form of solution towards the concerned problem or in certain generalization for some theoretical formulations.

This research process is carried out as the series steps, which are required to be taken in the chronological order.

The Research steps are as follows:

- Problem Identification.
- Extensive Literature survey.
- Research Design.
- Determining sample design.
- Collecting the data.
- Analysis of data.
- Hypothesis Testing.
- Preparation of Report.

DATA COLLECTION METHOD:

The task of data collection begins after a research problem has been defined and research design or plan chalked out. While deciding about the method of data collection to be used for the study, following two types of data is kept in mind:-

1. Primary Data.
2. Secondary Data.

The primary data are those data which are collected afresh and for the first time and original in character.

The secondary data are those data which have been collected by someone or published data. In this study both primary and secondary data will be required. The nature of study will descriptive then primary data can be obtained through survey by either through observation or through direct communication with respondents in one form or another or through personal interviews. Secondary data will be obtained by published report, financial report, and survey report by various dept.

10. WORTHY CONTRIBUTION IN THE FIELD OF PROPOSED METHODOLOGY:

1. *Project Report on "* ***Comparative study of SECL and others Company's personnel****" submitted by Sadhna Bagchi (myself) supervised by Dr. Dewasish Mukherjee, Principal, Mahant Laxmi Narayandas College, Raipur (C.G.) in year 2012-13. The study covers the company's profile its manpower and facility and amenities provided to their employees and workers.*

2. *Mr. Vimal Kumar Govindani guided by Dr. J.l. Gangwani, प्राध्यापक, वाणिज्य, श.ग.द.क. महाविद्यालय in the year 2001-2002 has been awarded with ph.D for the topic 'नवगठित छत्तीसगढ़ के आर्थिक विकास में सिमेंट उद्योग का अध्ययन ' this study enlighten on the knowledge of cement industry and its contribution to words economics growth of Chhattisgarh*

3. *' भारत की आर्थिक उदारीकरण, उपलब्धियाँ ' a study submitted by shri Parshant Shukla Guided by Dr. P.P. JAISWAL IN THE YEAR 1999-2000 FOR degree of Ph.d has through the light on the effect of policy of libraisation, new industrial policy and the effect on industrial. This study tells about achievement, Prospect and challengenges accured by libraisation policy.*

4. *ku. Sunaina Parekh under the supervision of dr. Surendra Kumar agrawal, Asst. professor Commerse durga Mahavidhyalaya, Raipur in the year 2003 on the topic 'छत्तीसगढ़ के आर्थिक विकास में खनिज संसाधन एवं उस पर आधारित उद्योगों का योगदान एक संश्लेषणात्मक अध्ययन ' for Ph. D award has give the brief knowledge on the contribution of minerals on economics growth of Chhattisgarh state.*

5. *'रायपुर संभाग में खनिज आधारित का विकास समस्याएं एवं संभावनाएं एक अध्ययन ' Submitted by Smt.*
Babita Pathak under the supervision of Dr. M.R. Chandrakar Govt. College, Raipur for Ph.D award has give the knowledge on the field of mining of minerals and its growth problems and Prospect and this study limited to Raipur distict.

6. *Mr. Rameshwar Prasad Soni, Guided by Dr. D.P. Agrawal hod commerce ratna Chandra Surana College durg has been submitted theris on the topic of ' छिलाड़ी संयंत्र के क्षेत्रान्तर्गत स्थित दल्ली राजहरा नंदनी तथा हिर्री खदानों के श्रमिकों का आर्थिक एवं सामाजिक विश्लेषण ' for the award of Ph. D analysis study of Economics & Social status of labour in dalli and rajhara mines. Which make a comparative study between different mines of iron ores.*

1. *Research articles published in journals*

*"**Analyzing the census data 2001 and 2011 of Chhattisgarh to know some facts**" published by Dr. Ashok Pradhan, Lecturer, school of studies in anthropology. Pt. Ravi Shanker Shukla University, Raipur.*
Discusses the decade growth rate, decade growth rate difference, sex ratio, literacy ratio and it growth pattern at state and district level of Chhattisgarh.

11.

TENTATIVE SCHEME OF CHAPTERS

ROLE AND IMPORTANCE OF S.E.C.L. IN ECONOMIC DEVELOPMENT OF CHHATTISGARH

(IN SPECIAL REFERENCE TO SECL & KORBA AREA)

CHAPTER – 1. SUBJECT INTRODUCTION-

1.1 IMPORTANCE OF SUBJECT SELECTED.

1.2 MEANING OF COAL AND COAL MINING - TYPES AND USES.

1.2-1 MEANING OF COAL AND COAL RESERVES.

1.2-2 MEANING OF MINING AND COAL MINING.

1.2-3 IMPORTANCE OF COAL IN ENERGY SCENARIO.

1.2-4 NEED OF COAL MINING.

1.2-5 PROCESS OF MINING.

1.2-6 USES OF COAL IN VARIOUS INDUSRIES.

1.3 OBJECTIVE OF RESEARCH.

1.4 RESEARCH TECHNIQUES.

1.5 HYPOTHESIS OF STUDY.

1.6 LIMITATION OF STUDY.

1.7 AREA OF STUDY.

1.8 PLAN AND DESIGNING OF RESEARCH WORK.

CHAPTER- 2. HISTORICAL BACKGROUND OF COAL MINING IN CHHATTISGARH-

2.1 BRIEF INTRODUCTION OF CHHATTISGARH STATE.

2.1-1 GEOGRAPHICAL AREA.

2.1-2 HISTORICAL BACKGROUND.

2.1-3 MINERAL RESOURCE RESERVES IN STATE.

2.1-4 LAND DIVERSIFICATION IN STATE.

2.1-5 SCOPE OF INDUSTRIALISATION IN STATE.

2.1-6 EDUCATION STANDARD SYSTEM.

2.1-7 POPULATION LITERACY LEVEL AND EMPLOYMENT IN STATE.

2.1-8 NUMBERS AND TYPES OF INDUSTRY .

2.2 HISTORY OF COAL MINING AND COALFIELDS IN INDIA.

2.3 HISTORY OF COAL MINING AND COALFIELDS IN CHHATTISGARH STATE.

CHAPTER- 3 . FEASIBILITY STUDY OF GROWTH PROSPECT OF COAL MINING IN CG.

3.1 FEASIBILITY STUDY.

3.1-1 ECONOMIC FEASIBILITY.

3.1-2 TECHNICAL FEASIBILITY.

3.1-3 OPERATIONAL FEASIBILITY.

3.1-4 LEGAL AND ADMINISTRATIVE FEASIBILITY.

3.1-5 ECOLOGICAL FEASIBILITY.

3.1-6 SCHEDULE FEASIBILITY.

3.2 POSSIBILITY OF GROWTH OF COAL MINING IN KORBA DISTRICT.

CHAPTER 4. CONTRIBUTION OF GOVT. TOWARDS SECL

4.1 ROLE OF CENTRAL GOVT.

4.2 ROLE OF STATE GOVT.

4.3 ROLE OF OTHER STATUARY BODIES**.**

CHAPTER- 5. PROGRESS AND PROSPECT OF COAL PRODUCTION AND COAL MINING IN CHHATTISGARH WITH REFERENCE TO SECL

5.1 COALMINES IN CG –LOCATION AND CAPICITY OF PRODUCTION.

5.2 STATISTICAL PROGRESS OF COAL PRODUCTION IN CHHATTISGARH.

5.2-1 STATISTICAL PROGRESS OF COAL MINES IN BILASPUR DISTRICT.

5.2-2 STATISTICAL PROGRESS OF COAL MINES IN KORBA DISTRICT.

5.2-3 STATISTICAL PROGRESS OF COAL MINES IN RAIGARH DISRICT.

5.2-4 STATISTICAL PROGRESS OF COAL MINES IN SURGUJA DISRICT.

5.2-5 STATISTICAL PROGRESS OF COAL MINES IN KOREA DISTRICT.

5.3 CAPITAL INVESTMENT OF SECL

5.4 FINANCIAL CONDITION OF SECL

5.4-1 PRODUCTION OF SECL IN PAST YEARS.

5.4-2 ANNUAL SALES OF SECL IN PAST YEARS.

5.4-3 PROFIT OF SECL IN PAST YEARS.

5.5 COMING PROJECTS AND FLOOR PROJECTS OF SECL.

5.6 ENCOURAGEMENT OF COAL PRODUCTION IN CHHATTISGARH.

5.6-1 STUDY OF POLICIES OF STATE TOWARDS COAL INDUSTRY.

5.6-2 EFFECT OF NEW INDUSTRIAL POLICY ON COAL INDUSTRY.

5.7 CONSUMPTION OF COMMERCIAL ENERGY AND ITS SENERIO IN INDIA.

5.7-1 PREFACE

5.7-2 DEPENDENCY ON COAL.

5.7-3 DEPENDENCY ON OTHER RESOURCES.

CHAPTER -6. COAL FIELDS IN KORBA REGION

6.1 GENERAL INTRODUCTION OF KORBA DISTRICT.

6.1-1 GEOGRAPHICAL.

6.1-2 HISTORICAL BACKGROUND.

6.1-3 MINERAL RESERVES.

6.1-4 LAND DIVERSIFICATION.

6.1-5 SCOPE OF INDUSTRIALISATION.

6.1-6 EDUCATIONAL STANDARDS.

6.1-7 INDUSTRY.

6.1-8 INFRASTRUCTURE AVAILABILITY.

6.1-9 LITERACY LEVEL AND EMPLOYMENT LEVEL.

6.2 COAL RESERVES IN KORBA DISTRICT.

6.3 GROWTH AND PROSPECT OF COAL MINING IN KORBA DISTRICT.

6.3-1 STATISTICAL PROGRESS OF COAL PROJECTS.

6.3-2 ANNUAL PROGRESS IN PRODUCTION.

6.3-3 ANNUAL PROGRESS IN HUMAN RESOURCES.

6.3-4 RELATIONSHIP BETWEEN PRODUCTION AND HUMAN - -RESOURCE DEVELOPMENT.

CHAPTER- 7. STRUCTURAL STUDY OF COALFIELDS IN KORBA REGION

7.1 DETAIL OF PROJECTS IN KORBA DISTRICTS.

7.2 PRODUCTION PROCESS, TECHNIQUES AND TECHNOLOGY APPLIED.

7.3 AVILABILITY OF RESOURCES.

7.4 SELLING AND DISPATCH OF COAL.

7.5 GROWTH IN COAL PRODUCTION IN PAST YEARS AND PROSPECTS IN- -COMING YEARS.

CHAPTER-8. CONTRIBUTION OF SECL IN ALL ROUND DEVELOPMENT OF C.G.

8.1 COMPARATIVE STUDY OF PER CAPITA INCOME IN PAST YEARS.

8.2 COMPARATIVE STUDY OF LITERACY LEVEL IN SURROUNDING -AREAS IN PAST YEARS.

8.3 COMPARATIVE STUDY OF EMPLOYMENT LEVEL.

8.4 INFRASTRUCTURE DEVELOPMENT.

8.5 LIVING STANDARDS IN SURROUNDINGS OF SECL.

8.5-1 EMPLOYEES AND WORKERS.

8.5-2 CONTRACTUAL EMPLOYEES.

8.5-3 DAILY WAGES EMPLOYESS.

8.5-4 RETIRED EMPLOYEES.

8.5-5 DEPENDENT OF LATE EMPLOYEES.

. 8.5-6 MIGRATED VILLEGERS.

8.5-7 OTHERS.

8.6 STATUS OF POLLUTION & ENVIRONMENT IN SURROUNDINGS OF -SECL.

8.6-1 AIR POLLUTION.

8.6-2 WATER POLLUTION.

8.6-3 SOIL AND NOISE POLLUTION.

CHAPTER- 9. PROBLEMS RELATED TO SECL, SOLUTION & SUGGESTION.

9.1 PROBLEMS RELATED TO VARIOUS FIELDS

9.1-1 RESOURCE PROBLEMS.

9.1-2 LAND ACQUISITION.

9.1-3 LABOUR PROBLEM.

9.1-4 TRANSPORTATION PROBLEM.

9.1-5 WASTAGE OF RESOURCES.

9.1-6 STOCKING OF COAL.

9.1-7 THEFT AND DETERIORATION.

9.1-8 TECHNOLOGY UPGRADATION.

9.1-9 RATIONALIZATION AND RESISTANCE OF CHANGE.

9.1-10 SAFETY AND SECURITY OF HUMAN RESOURCES.

9.2 SOLUTION.

9.3 SUGGESTIONS

CHAPTER-10. CONCLUSION

10.1 CONCLUSION.

10.2 FUTURE MEASURES.

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